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Ontario. Royal Commission on Matters
of Health and Safety Arising from the
Use of Asbestos in Ontario
Background briefing notes



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ROYAL COMMISSION ON ASBESTOS

Background Briefing Notes

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Background Briefing Notes #1

HEALTH EFFECTS OF ASBESTOS

The Royal Commission on Asbestos finds that the health hazard posed by asbestos depends on the quantity of asbestos fibres an individual breathes and on the dimensions of those fibres.

The three members of the Royal Commission on Asbestos were J. Stefan Dupré, professor of political science at the University of Toronto, who acted as chairman; Dr. J. Fraser Mustard, professor of pathology at McMaster University and President of the Canadian Institute for Advanced Research; and Robert J. Uffen, professor of engineering and geophysics at Queen's University.

The Commission's three-volume Report, running over 900 pages, features an exhaustive analysis of the health effects of asbestos. This analysis is based in part on the scientific literature and in part on sworn testimony given by an interna-

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tional who's who of asbestos experts during more than fifty days of formal Commission hearings. The expert witnesses underwent examination and cross-examination by representatives of industry, labour and government.

Of the asbestos fibres that can be inhaled, the most hazardous asbestos fibres are longer than 5 or perhaps 8 microns, and thinner than 1.5 microns. A micron is a millionth of a metre. Thinner fibres can more easily penetrate into the lung tissue. While shorter fibres can be surrounded by protective cells in the lungs, longer fibres cannot be so surrounded. Thus they retain the potential to cause cancer while they remain in the lungs, which may be for decades.

The Commission further concludes that the three types of asbestos that are of major commercial importance differ significantly in the dimension of their fibres. Crocidolite asbestos and amosite asbestos are more hazardous than chrysotile asbestos because fibres of crocidolite and amosite are more likely to conform to the most hazardous dimensions. They are also more likely to become airborne and hence to be respirable. The resulting hazard leads the Commission to recommend that the use of crocidolite and amosite asbestos be prohibited in Ontario. The Commission's conclusion that health risks differ among fibre types is shared by occupational health agencies in Ontario and the United Kingdom.

The Commission reaches a conclusion that breaks new ground when it states that the type of industrial process in which any

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given type of asbestos is used also influences the dimensions of the fibres released into the air, and thus the hazard faced by workers. The manufacture of asbestos brake linings, which involves drilling and grinding of chrysotile asbestos is much less likely to generate fibres of hazardous dimensions than textile manufacturing, which involves spinning and weaving. The health experience in textile plants has been so adverse that the Commission recommends that textile spinning and weaving be prohibited in Ontario.

For a given fibre type and a given industrial process, the Commission concludes that the risk of disease depends upon the quantity of fibres breathed. While asbestosis, a form of lung fibrosis, has been common among workers exposed to high asbestos concentrations in the past, the Commission believes that under the regulations it has recommended, asbestosis will become a disease of the past. In the case of lung cancer and mesothelioma, a cancer of the lining of the lung or abdomen, the relationship between the quantity of fibres breathed and the risk of disease cannot be stated with scientific certainty. According to the Commission, however, prudence dictates the assumption that the risk of disease is proportional to the extent of fibre exposure. This implies that any exposure involves some risk of disease, although at very low exposure levels, such as in the outdoor air, this risk is insignificant.

For years there has been evidence that the risk of lung cancer for a smoker who breathes asbestos is greater than the

sum of the risk from each activity alone. The Commission accepts this evidence as establishing that smoking may multiply the risk of lung cancer for an asbestos-exposed worker by a factor of 5. It concludes that "smoking coupled with asbestos work is like pouring gasoline on a fire."

In addition to concluding that the risk of disease differs among the major asbestos fibre types and between different industrial processes, the Commission concludes that mesothelioma is caused differentially by the different fibre types. Mesothelioma is most likely to result from crocidolite exposure, has a strong association with amosite exposure, and has a weak association with chrysotile exposure.

The primary evidence regarding the dangers of breathing asbestos fibres arises from disease caused by the large quantity of asbestos breathed by asbestos workers over the three decades during and after World War II. These high exposures have left a tragic legacy of disease and death. The exposure of the general public to asbestos fibres is thousands of times less than these exposures. There is no evidence of significant health risks to the general public from exposure to asbestos in the ambient air and in buildings unless the person is breathing in the immediate vicinity of loose asbestos that is being disturbed. The health risk posed by asbestos is therefore a workplace health risk rather than a general public health risk.

The Commission links the health hazards of asbestos to inhalation, not swallowing. Neither biological nor epidemio-

logical evidence indicates that swallowing asbestos creates a health risk. In addition, the fibres found in water, often numbering millions per litre, are very short. The Commission concludes that concern about asbestos in drinking water, beverages and food is not justified.



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Background Briefing Notes #2

THE REGULATION OF ASBESTOS IN INDUSTRY

The Report of the Royal Commission on Asbestos calls for additional regulation of asbestos in industry, and for selective prohibitions of its use. Current Ontario regulations stipulate maximum 40-hour average exposures, called control limits, in mining and manufacturing. These control limits, stated in so many fibres per cubic centimetre of air (f/cc), are 0.2 f/cc for crocidolite asbestos, 0.5 f/cc for amosite asbestos and 1 f/cc for chrysotile asbestos. The Commission calls the existing Ontario Regulation Respecting Asbestos "one of the most stringent of any jurisdiction in the world" except for Sweden. This Regulation applies in a setting where only chrysotile asbestos has in fact been used since 1980, and about one thousand workers are directly exposed to asbestos in manufacturing, much of it involving automotive brakes.

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The Commission recommends that the current limits of 0.2 f/cc for crocidolite and 0.5 f/cc for amosite should be replaced with an outright prohibition of the use of these two types of asbestos in Ontario manufacturing. The Commission has found that the risks of death from asbestos disease faced by workers exposed to crocidolite and amosite for 10 to 25 years at the current control limits are such that they equal or exceed the risks of accidental death faced by workers in some of Ontario's most hazardous industries, for example construction and mining. Current measurement methods and control technology do not make it possible to decrease worker exposures sufficiently to reduce disease risk from crocidolite and amosite to a level at or below the risk of accidental death in the average Ontario manufacturing industry. The Commission estimates that, to achieve such low risks, unattainable control limits of 0.02 f/cc for crocidolite (one-tenth the current Ontario limit) and 0.1 f/cc for amosite (one-fifth the current Ontario limit) would be necessary. Given the impossibility of ensuring that maximum exposures to crocidolite and amosite will not exceed these levels, the Commission recommends prohibition.

As for chrysotile asbestos, the Commission draws a sharp distinction between the use of chrysotile asbestos in general manufacturing and the use of chrysotile in textile manufacturing. Chrysotile asbestos has been the only kind of asbestos used in Ontario manufacturing since 1980, and is the only kind of asbes-

tos mined in Canada. The Commission finds that the disease risk associated with chrysotile asbestos in textile manufacturing is likely to be so high that the use of chrysotile in such manufacturing should be prohibited. The control limit required to reduce the risk of chrysotile in textile manufacturing to acceptable proportions is estimated to be 0.04 f/cc and is unattainable.

On the other hand, the disease risk that the Commission associates with chrysotile asbestos in general manufacturing and mining is much lower, so that here the current control limit of 1 f/cc is appropriate if it is properly enforced. While there is no significant chrysotile mining in Ontario at this time, chrysotile is used in manufacturing activities that employ about 1,000 Ontario workers, most of them in the automotive brakes industry.

The Commission endorses the Ministry's 1 f/cc control limit in chrysotile manufacturing other than textiles. According to the Commission, a 1 f/cc control limit, when carefully applied and enforced, means that average worker exposure will in fact be 0.5 f/cc. The Commission suggests improvements whereby the Ontario Regulation can further ensure that an average worker exposure of 0.5 f/cc is being achieved. It makes some two dozen recommendations in this regard, many of them on technical matters such as measurement methods and sampling procedures. The Report also stresses that workers must be informed of the risks they face and be involved in the application of the regulation, including the measurement of fibre levels.

With respect to enforcement, the Commission favours a special Ministry approach to all substances designated as capable of causing workplace disease. In particular, its Report recommends the creation of a Designated Substances Enforcement Unit, which should be headed by an official whose professional background includes training in investigative procedures. Other than for this official, the proposed Unit does not, in the Commission's view, require that the Ministry of Labour increase its size. The Ministry already has the services of an appreciable number of highly trained professionals who are specialized in occupational health. The Enforcement Unit would consist of teams of these experts assembled by its directing official to make thorough, special and unannounced inspections of workplaces in which asbestos and other designated substances are in use.



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Background Briefing Notes #3

HOW DO THE ONTARIO COMMISSION'S PROPOSALS
FOR REGULATING ASBESTOS IN INDUSTRY COMPARE
WITH REGULATIONS ELSEWHERE?

The Report of the Royal Commission on Asbestos recommends that the use of crocidolite and amosite asbestos be prohibited in Ontario manufacturing activity. It recommends that a like prohibition apply with respect to the use of chrysotile asbestos in textile manufacturing. As for the use of chrysotile asbestos in other types of manufacturing, the Commission recommends a control limit of 1 asbestos fibre per cubic centimetre of air, abbreviated as 1 f/cc. How does this approach to the regulation of asbestos in so-called "fixed place industry," that is mining and manufacturing, compare to regulations enforced or proposed elsewhere?

In the United States, which is currently the scene of multi-million dollar lawsuits launched on behalf of thousands

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of workers disabled or killed by high levels of asbestos exposure twenty or more years ago, a control limit of 2 f/cc has been enforced since 1976. This control limit has been criticized as being far too high by the United States Government's National Institute for Occupational Safety and Health (NIOSH). In 1976, NIOSH recommended a control limit of 0.1 f/cc for all types of asbestos in all types of industrial settings. In the autumn of 1983, the U.S. Government's Occupational Safety and Health Administration (OSHA) invoked an emergency standard, since stayed by court order, of 0.5 f/cc. This 0.5 f/cc control limit would also be applicable to all asbestos types in all industrial settings.

The United Kingdom, unlike the U.S., has applied different regulations to different types of asbestos. At present, the use of crocidolite asbestos is prohibited, with a nominal control limit of 0.2 f/cc being attached to this type of asbestos. Amosite asbestos is subject to a control limit of 0.5 f/cc, and chrysotile asbestos is under a control limit of 1 f/cc. Effective next summer, the U.K. will place chrysotile asbestos under a control limit of 0.5 f/cc. While the U.K. applies different regulations to different types of asbestos, its regulations do not take account of the possibility that a given type of asbestos may be more hazardous in certain industrial uses than in others.

The approach taken by the Ontario Commission to asbestos regulation in industry breaks new ground because it calls for

regulations that will differentiate between the different risks posed by the same type of asbestos in different industrial settings. The type of asbestos involved, chrysotile, is the only type that has actually been used in Ontario manufacturing since 1980.

The Commission finds, on the basis of evidence which includes sworn testimony from an international who's who of asbestos experts, that the use of chrysotile asbestos in textile manufacturing creates starkly higher risks of worker disease and death than the use of chrysotile in other kinds of manufacturing processes. According to the Commission's findings, the most hazardous asbestos fibres are those that are long and thin. Because the manufacture of asbestos-containing textile products involves spinning and weaving, this process is far more likely to generate long, thin fibres than other manufacturing processes. After examining the evidence, the Commission estimates that textile manufacturing with chrysotile asbestos exposes workers to risks twice as great as work with amosite asbestos. The Commission therefore concludes that the use of chrysotile asbestos in textile manufacturing should be prohibited in Ontario. No significant textile manufacturing operation currently uses chrysotile asbestos in Ontario.

In Ontario at present, chrysotile asbestos involves about one thousand workers, mainly in the manufacture of automotive brakes. A less significant volume of manufacturing activity uses chrysotile asbestos in the fabrication of products like

gaskets and packings. Because these kinds of manufacturing activities mean that chrysotile asbestos is either ground to fine dimensions or encapsulated in liquids early in the manufacturing process, a much smaller volume of long, thin fibres can become airborne. Worker risks are correspondingly reduced. Therefore, the Commission recommends that chrysotile asbestos in friction product and general manufacturing other than textiles be subject to a control limit of 1 f/cc, and thereby endorses the existing Ontario control limit.

Because current and proposed U.S. control limits do not distinguish among different types of asbestos, and for that matter between different manufacturing processes, they leave workers exposed to a range of risks from crocidolite, from amosite, and from chrysotile asbestos in textile manufacturing, which the Ontario Commission finds unacceptable. According to the Commission's calculations, even the NIOSH recommendation of a 0.1 f/cc control limit for all asbestos types is too lax for crocidolite and for chrysotile in textile manufacturing. In any event, the Commission expresses the opinion that current measurement technology does not permit the effective application of a 0.1 f/cc control limit. When the health risk to workers requires a control limit that is below measurement capacity, the substance should be prohibited, the Commission states.

As for the 0.5 f/cc control limit that will soon become applicable to chrysotile asbestos manufacturing in the U.K., this regulation encompasses the textile manufacturing which the Ontario Commission has deemed sufficiently hazardous to warrant

outright prohibition. As for the Commission's 1 f/cc control limit in general chrysotile manufacturing, this maximum is to be applied through recommended techniques and enforcement methods to assure that the average worker exposure will be 0.5 f/cc.

In Canadian provinces other than Ontario, the most common control limits are 2 f/cc for chrysotile, 0.5 f/cc for amosite, and 0.2 f/cc for crocidolite. Quebec applies a standard of 2 f/cc, with an additional limitation on the total mass of asbestos concentration in the air.



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Background Briefing Notes #4

ASBESTOS IN BUILDINGS

The Report of the Royal Commission on Asbestos contains both good news and bad news for owners and occupants of buildings containing asbestos. Many multi-story office buildings, factories, schools, and other public buildings constructed between 1950 and 1973 contain asbestos. This asbestos was often sprayed on beams and ceilings, and was sometimes used to insulate pipes and boilers.

The good news is the Commission's conclusion that the mere presence of friable (crumbly) asbestos in a building does not present a health hazard to the building occupants. Several studies, including two performed for the Commission, have shown that undisturbed asbestos in buildings rarely causes significantly elevated airborne asbestos levels. Often the asbestos fibre level in the air of these buildings is not detectable, or

is no greater than that found in outdoor air. Any possible risk of cancer created by such low exposures is insignificant compared to other risks faced by the public. Even a building whose air has a fibre level up to ten times greater than that found in typical outdoor air would create a risk of fatality that was less than one-fiftieth the risk of having a fatal automobile accident while driving to and from the building. The Commission concludes that asbestos removal is generally not warranted for occupant protection, where the asbestos is undisturbed. Undisturbed asbestos in good condition should be left alone.

The bad news is that maintenance, renovation, demolition, or even custodial work that disturbs friable asbestos can cause significant asbestos exposures for those doing the work, and occasionally for building occupants. There may also be a risk for building occupants if asbestos insulation is visibly falling from ceilings. When loose insulation has fallen in a building built between 1950 and 1973, the Commission recommends that the building owner should have the insulation tested for asbestos content. A like obligation would apply whenever insulation is likely to be disturbed by maintenance or other work.

The Commission recommends an elaborate set of procedures and duties to protect workers and building occupants from the hazards posed by work which disturbs asbestos in buildings. If adopted, these procedures would constitute the most comprehensive set of regulations regarding asbestos in buildings in North America. The Commission found evidence that asbestos levels

generated by building work can be extremely hazardous. Its evidence included the 1979 death from asbestos disease of Mr. Clifton Grant, a school carpenter who worked on asbestos materials in Scarborough schools.

The Commission recommends that before any building is demolished, any friable asbestos should be removed from the building, thereby endorsing a proposal made by the Ontario Ministry of Labour. This requirement will mean that all friable asbestos in Ontario buildings must eventually be removed, at a cost likely to run into the hundreds of millions of dollars. Because most such removal can be postponed until just prior to demolition, the cost will be spread over a century.

If a building is to be renovated or maintained, and this will disturb friable asbestos, then specific precautions are needed to protect building workers. The extent of the precautions will depend upon the extent of the disturbance. The Commission's recommendations specify a variety of precautions, and the circumstances in which they must be used. Minor work such as stringing wires above a suspended ceiling near sprayed asbestos insulation may only require that the workers wear respirators and that the area be carefully cleaned afterward. More extensive work may require that the area be surrounded with plastic sheet, that air circulation be shut off, that the asbestos be wetted where possible, and that records of worker exposure be maintained. Major renovation projects would require that the

asbestos be removed before the renovation proceeded, using expensive procedures to contain the resulting dust, and to protect the removal workers.

The Commission recommendations impose substantial new duties upon the owners of buildings to which asbestos was applied at the time of construction or renovation. This means buildings erected or renovated between 1950 and 1973. If friable insulation in such buildings is to be disturbed, the owner must have the material tested to determine whether it contains asbestos. If friable asbestos is found in a building, the owner must have it labelled, and must establish a management programme that will protect workers and occupants. This programme must include training all building custodial and maintenance workers in safe procedures for working with the asbestos, and for minimizing its disturbance. When maintenance, renovation or demolition work will be performed, the owner must notify the contractor and workers of the location of all friable asbestos in the building, and require that safe work procedures be followed. If asbestos is discovered in the course of some building work, the building owner is responsible for bearing the extra costs of dealing safely with that asbestos.



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Background Briefing Notes #5

REGULATION OF ASBESTOS
IN CONSUMER PRODUCTS AND BEVERAGES

The Report of the Royal Commission on Asbestos concludes that regulation of asbestos-containing consumer products, beverages, and food in Canada has been erratic. Some products such as asbestos-insulated hair dryers have been removed from the market although they do not release asbestos fibres above background levels in Canadian city air. Other products, such as free-form asbestos which may release significant levels of asbestos fibres are readily available at hardware stores across the country. Asbestos-cement sheet is available at building supply stores with no indications of the safe practices to use when working with it.

Asbestos has been used in a variety of ways in a large number of consumer products. Asbestos may be contained in ironing board covers, oven gloves, toasters, broilers, ovens,

refrigerators, and clothes washers and dryers. In addition, consumers may handle building products such as asbestos floor tiles, asbestos roofing, asbestos-cement sheet, and asbestos-textured paints. Asbestos has been used in these products because of its resistance to heat, its electrical insulating qualities, its performance in friction materials, or because the fibres give strength and durability to the product.

The Commission concludes that breathing airborne asbestos fibres causes a risk of lung cancer that increases in proportion to the quantity of asbestos inhaled. The health hazard faced by consumers depends upon the quantity of asbestos fibres that they may breathe. Asbestos-containing products vary greatly in the quantity of fibres that they might release. This depends on the manner in which the asbestos is contained and on the way the product is used or handled.

The Commission recommends that the Government of Ontario, in collaboration with the federal government, sort consumer products into three categories. The first would be those that can release significant levels of asbestos fibres in normal use, such as loose-fill asbestos insulation. The sale to the general public of products in category one should be banned. The second category would include products that possess the potential of releasing fibres from cutting or sanding or as a result of degradation, such as asbestos-cement sheet or asbestos gloves. Products in category two should be labelled and instructions made available as to their safe use. The third category would

include products in which the asbestos is sealed off or encapsulated, such as most appliances and molded plastic products. Products in this third category should not be subject to regulation.

Consumers may also be exposed to asbestos in drinking water, beverages, and food. Concentrations of up to four million fibres per litre of drinking water have been found in southern Ontario municipalities such as Toronto and Sarnia, while up to twenty-two million fibres per litre have been found in northern Ontario municipalities, such as Thunder Bay. Concentrations exceeding one million fibres per litre are found in wine, beer and other beverages. After reviewing all the available medical evidence, the Commission concludes that eating or drinking asbestos in the concentrations currently found in drinking water, beverages, or food in North America is not associated with any significant increase in disease. Many studies have looked for a relationship between oral ingestion and disease, but so far the results are negative. The Commission concludes that regulation of asbestos in drinking water, beverages, and food is unnecessary and unproductive. Special filtering of drinking water to remove asbestos is not required. The Liquor Control Board of Ontario has imposed a ban on the use of asbestos filters in the production of beer, wine and liquor. The Commission recommends that this ban be lifted, noting that it is unnecessary, and was never effectively enforced on imported beverages.



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Background Briefing Notes #6

COMPENSATING ASBESTOS VICTIMS

The Royal Commission on Asbestos praises the Workers' Compensation Board as being, "in the sphere of asbestos disease, one of the most progressive compensation agencies in the world." But it strongly criticizes the agency on procedural grounds.

Under its statute, the WCB is vested with broad discretion in the matter of compensating victims of industrial disease. It has used this discretion for enlightened ends, such as recognizing that laryngeal and gastrointestinal cancer can be caused by worker exposure to asbestos and so should be compensable. But the WCB's discretion, according to the Commission, needs to be structured and confined.

In this regard, the Commission resoundingly endorses certain recommendations recently made by Professor Paul Weiler in a general review of the WCB that was commissioned by the Ontario

Ministry of Labour. In particular, the Commission urges that the Corporate Board of the WCB, now made up entirely of full-time commissioners, be composed of a majority of outside, part-time directors. And it gives its enthusiastic support to the creation of an Appeals Tribunal completely independent from the WCB's Corporate Board.

Specifically in the realm of disease compensation, the Commission recommends that asbestosis and mesothelioma be given statutory recognition as compensable diseases. It also advocates the creation of an Advisory Council on Industrial Disease Policy to guide the WCB in the formulation of eligibility rules and in such matters as the rehabilitation of diseased workers and the financing of industrial disease compensation.

The Commission devotes almost an entire chapter of its Report to the compensation of victims of asbestosis. This disabling, irreversible and normally progressive disease is found only among individuals who have had substantial workplace exposure to asbestos. The disease can itself be fatal, and most commonly makes its victims susceptible to death from related causes. The Commission finds substantial evidence that victims of asbestosis suffer psychological as well as physical impairment and that medicine recognizes the reality of psychological impairment. It also observes that Courts take psychological damage into account when they compensate plaintiffs in civil actions. The WCB itself has recognized that psychological impairment can

be compensable in the realm of industrial accidents. The Commission therefore recommends a major change in WCB policy so that its compensation of asbestosis victims will encompass their total medical impairment, psychological as well as physical.

With respect to the financing of workers' compensation, the Commission recommends greater experience rating among asbestos employers in future. This means that employer contributions would more closely match claims by their workers. The Commission does not, however, recommend that companies should lose the protection they now enjoy from lawsuits for work-related illnesses. After reviewing the current American experience with widespread asbestos litigation, the Commission states that "the uncertainty, the legal costs, time delays, and burden upon the court system all lead us to reject the creation of a right for injured workers to sue their employer."

There is an exceptional circumstance, however, which the Commission believes should give rise to the possibility of legal action by the Workers' Compensation Board itself. This circumstance would exist where an adverse disease claim experience was occasioned not by chance but because a firm had exposed its employees to a serious health risk without divulging to them what it knew about the size of that risk.

The Commission therefore recommends that the Workers' Compensation Act should be amended to give the Board a statutory right of action, under stipulated circumstances, against an employer whom it believes has withheld such knowledge from employees. The statute should fix the amount that could be

recovered by the Board in a successful action at twice the amount paid out on behalf of the employer's disease claims. One-half of this amount would be applied to replenish the Board's accident fund; the other half would be apportioned by the Board as an additional award to its claimants.



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Royal Commission on Matters of Health
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Background Briefing Notes #7

GOVERNMENTS NEED IMPROVED HAZARD IDENTIFICATION,
RISK ASSESSMENT CAPACITY

"Was this Royal Commission really necessary?" The Royal Commission on Asbestos opens its massive, three-volume Report by posing this question. It states that the answer to the question should be provided by the readers of its Report, which took almost four years to complete and cost the Ontario taxpayer \$1.7 million.

But the Commission then challenges its readers by saying that, whatever their answer to its question, the appointment of royal commissions to identify hazards and assess risks will not be a satisfactory way to cope with growing concern over the multiplication of potentially hazardous substances in the workplace and the environment. The royal commission approach, says the Commission, "given its cost in money and time, is clearly not a substitute for the development of ongoing, institution-alized approaches to the matter of hazard identification."

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The asbestos experience, according to the Commission, teaches important lessons about the regulation of hazardous substances. The tragic toll of disease and death inflicted upon asbestos workers is the result of social attitudes which, until about a decade ago, were indifferent to the importance of disease prevention. Given these attitudes, the process of identifying the hazards posed by asbestos unravelled slowly and regulatory responses lagged.

But these attitudes have changed dramatically. "Fortunately," says the Commission, "society now recognizes that factors in the human environment contribute importantly to premature death, and that prevention is the best approach for the control of many diseases." Yet now that society is rightly apprehensive of disease-causing substances, it must also learn that the asbestos experience speaks for a discriminatory response to a hazardous substance. What happened in recent years with respect to asbestos is that "protective actions were taken which did not recognize that a substance that kills in the workplace may pose insignificant risks in the indoor or outdoor environment."

Throughout Canada and the United States, hundreds of millions of dollars have been spent removing asbestos from buildings. Only a fraction of these removal projects was warranted by the risks posed to building occupants. The public authorities that financed these removal projects, including the Government of Ontario which has spent \$26 million to finance asbestos removal from schools, showed how responsive they are to public apprehen-

sions. But there was no one to explain to the public that apprehension was not justified in many instances because risks were insignificant. Asbestos removal projects conducted on a crash basis therefore involved some needless expenditure. Also, the Commission states that the crash nature of the removal work probably increased the risk that asbestos removal workers may contract disease. This risk arises from elevated asbestos exposures occasioned by careless work practices frequently associated with inexperienced contractors.

If the asbestos experience is not to be repeated with other substances, governments need an agency whose mandate is to identify hazards and assess risks in an ongoing manner. The Commission notes that the Science Council of Canada recommended in 1977 that the Government of Canada create such an agency. This recommendation has not been implemented.

The Commission says that a hazard identification and risk assessment agency will be most economical and effective if it is created to serve all governments, federal and provincial. It urges the Government of Ontario, through its channels of federal-provincial communication, to secure the creation of such an agency. The agency should have the scientific capacity to identify hazardous substances and to assess where and when such substances pose significant risks or insignificant risks. It should be an information agency, leaving matters of regulation to the usual departments of the federal and provincial governments. The agency should have open means of communicating with elected representatives, the media and regulatory officials.

